WHAT IS CLAIMED IS:

1. A wireless communication device, comprising:

a transmission data storage module that stores a service data unit transferred from a higher layer and receives information about a prescribed size and number of protocol data units from a lower layer; and

a segmentation module that segments the service data unit into at least one protocol data unit having the prescribed size and number, based on the information from the lower layer.

2. The device of claim 1, wherein the lower layer is a media access control layer.

3. The device of claim 1, wherein the service data unit enters the transmission data storage module from the higher layer through a transparent-SAP and the at least one protocol data unit is transmitted to a receiver side through a BCCH, PCCH, DCCH, CCCH, DTCH, or SHCCH logical channel.

4. A data processing method, comprising:

storing service data units transferred from a higher layer in a transmission data storage module;

receiving prescribed size and number information of protocol data units from a lower layer; and

turning the service data units into at least one protocol data unit in accordance with the received information about the prescribed size and number.

5. The data processing method of claim 4, wherein the service data units are segmented to form the prescribed size and number of the at least one protocol data unit.

6. The data processing method of claim 5, wherein:

no overhead or header is added to the at least one protocol data unit;

the segmentation is carried out in accordance with a type of a transport channel and a transport format used to communicate the at least one protocol data unit to a receiver; and

the transport format informs the receiver of how the segmentation was carried out.

7. The data processing method of claim 4, wherein the lower layer is a media access control layer.

8. The data processing method of claim 4, wherein the transmission data storage module stores and outputs data by an individual service data unit.

9. The data processing method of claim 4, wherein a size and number of the at least one protocol data unit transmitted to a receiver side through the lower layer vary in each of multiple transmission time intervals.

10. The data processing method of claim 4, wherein the service data units enter the transmission data storage module from the higher layer through a transparent-SAP and the at least one protocol data unit is transmitted to a receiver side through a BCCH, PCCH, DCCH, CCCH, DTCH, or SHCCH logical channel.

11. The data processing method of claim 10, wherein:

the DTCH logical channel is used when an RLC layer of a wireless communication system is on a user plane; and

one of the DCCH, CCCH, BCCH, SHCCH, and PCCH logical channels is used when the RLC layer is on a control plane.

12. The data processing method of claim 4, wherein all of the at least one protocol data unit containing data from one service data unit are transmitted in a transmission time interval.

13. A data processing method, comprising:

storing data received from a higher protocol layer into a buffer in the form of service data units (SDUs);

retrieving the data from the buffer in the form of SDUs and conveying the SDUs to a segmenter; and

segmenting the conveyed SDUs into a number of protocol data units (PDUs) with the segmenter, based on a selected type of transport channel.

14. The data processing method of claim 13, wherein the type of transport channel selected determines whether the conveyed SDUs are segmented.

15. The data processing method of claim 13, further comprising:

communicating a requested PDU size and a requested number of PDUs for each of the conveyed SDUs, from a lower protocol layer to the segmenter, wherein

each of the conveyed SDUs are segmented into the number of PDUs corresponding to the requested number of PDUs and having the requested PDU size.

16. The data processing method of claim 13, wherein:

each of the conveyed SDUs are segmented into a variable number of PDUs having a variable size; and

the variable number of PDUs corresponding to each of the conveyed SDUs are communicated to a lower protocol layer in a single transmission time interval.

17. The data processing method of claim 16, wherein for each of the conveyed SDUs, the corresponding variable number of PDUs and the corresponding variable size is determined in accordance with the relationship expressed by $S_{PDU} * (N_{PDU} - 1) < S_{SDU} \leq S_{PDU} * N_{PDU}$, where S_{SDU} is a size of the conveyed SDU, S_{PDU} is the variable size of the corresponding PDUs, and N_{PDU} is the variable number of the corresponding PDUs.

18. A data processing method, comprising:

storing data received from a lower protocol layer into a buffer in the form of protocol data units (PDUs);

retrieving the data from the buffer in the form of PDUs and conveying the PDUs to a reassembler; and

reassembling the conveyed PDUs into a service data unit (SDU) with the segmenter, based on a selected type of transport channel.

19. The data processing method of claim 18, wherein the type of transport channel selected determines whether one or multiple PDUs are reassembled into the SDU.

20. A data processing apparatus, comprising:

a buffer that stores data received from a higher protocol layer in the form of service data units (SDUs); and

a segmenter that retrieves the data from the buffer in the form of SDUs and segments the retrieved SDUs into a number of protocol data units (PDUs), based on a selected type of transport channel.

21. The data processing apparatus of claim 20, wherein the type of transport channel selected determines whether the retrieved SDUs are segmented.

22. The data processing apparatus of claim 20, further comprising:

a media access control (MAC) device that communicates a requested PDU size and a requested number of PDUs, for each of the retrieved SDUs, to the segmenter, wherein

each of the retrieved SDUs are segmented into the number of PDUs corresponding to the requested number of PDUs and having the requested PDU size.

23. The data processing apparatus of claim 20, wherein:

each of the retrieved SDUs are segmented into a variable number of PDUs having a variable size; and

the variable number of PDUs corresponding to each of the retrieved SDUs are communicated to a lower protocol layer in a single transmission time interval.

24. The data processing apparatus of claim 23, wherein for each of the retrieved SDUs, the corresponding variable number of PDUs and the corresponding variable size is determined in accordance with the relationship expressed by $S_{PDU} * (N_{PDU} - 1) < S_{SDU} \leq S_{PDU} * N_{PDU}$, where S_{SDU} is a size of the retrieved SDU, S_{PDU} is the variable size of the corresponding PDUs, and N_{PDU} is the variable number of the corresponding PDUs.

25. A data processing apparatus, comprising:

a buffer that stores data received from a lower protocol layer in the form of protocol data units (PDUs); and

a reassembler that retrieves the data from the buffer in the form of PDUs and reassembles the retrieved PDUs into a service data unit (SDU), based on a selected type of transport channel.

26. The data processing apparatus of claim 25, wherein the type of transport channel selected determines whether one or multiple PDUs are reassembled into the SDU.

27. The device of claim 1, wherein the segmentation module transfers the at least one protocol data unit to the lower layer.

28. The data processing method of claim 4, wherein at least one protocol data unit is transmitted to the lower layer in a transmission time interval (TTI) by a segmentation module.